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July 23, 2009

Commissioner of Patents  
Office of Patent Publication  
Correction Branch  
P.O. Box 1450  
Alexandria, VA 22213-1450  
USA

**Certificate  
JUL 30 2009  
of Correction**

Attention: Certificates of Correction Branch

Dear Sir/Madam:

**Re: U.S. Patent No. 7,523,638 (Appl. No. 10/711,081)**  
**Title: INNOVATIVE GAS MONITORING WITH SPACIAL AND**  
**TEMPORAL ANALYSIS**  
**Inventor: PRINCE, Dennis Scott**  
**Issue Date: April 28, 2009**  
**Our Ref.: 56646-1/WBV**

On behalf of the Applicant, we request a Certificate of Correction for the above-noted patent.

We note that the Letters Patent issued with some but not all of the amendments submitted in our reply to the Supplemental Notice of Allowability and Miscellaneous Communication on November 17, 2008 (copy enclosed).

In particular, column 1, lines 7 to 25 ought to have been replaced by paragraphs 1 and 2 and the heading "FIELD OF THE INVENTION" as detailed in our attached November 17, 2008 correspondence.

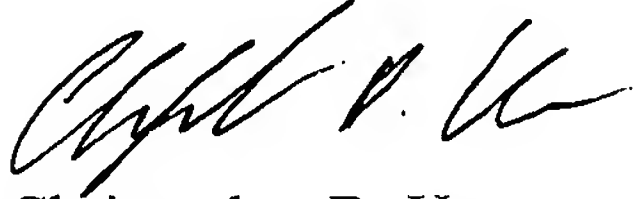
A copy of completed form PTO/SB/44 is enclosed. We look forward to receiving the Certificate of Correction in due course.

July 23, 2009  
Page Two

Should there be any questions, please contact Christopher D. Heer at 416-777-7396.

Yours truly,

**BENNETT JONES LLP**

A handwritten signature in black ink, appearing to read "Chris D. Heer", written in a cursive style.

Christopher D. Heer

CDH/rr  
Enclosure

WSLegal\056646\00001\5410363v1



## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 7,523,638  
APPLICATION NO.: 10/711,081  
ISSUE DATE : April 28, 2009  
INVENTOR(S) : Dennis Scott Prince

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1, lines 7 to 25 are replaced with:

[0001] This application claims the benefit of provisional application number 60/481,266 filed August 20, 2003.

### FIELD OF THE INVENTION

[0002] The present invention relates to gas monitoring, and more particularly to methods for determining sources of emissions.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Christopher D. Heer c/o Bennett Jones LLP, 3400 One First Canadian Place, Box 130, Toronto, ON M5X 1A4

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

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The information provided by you in this form will be subject to the following routine uses:

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



Our File: 56646-0001/WBV

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In the Matter of Patent Application:**

**COPY**

Serial No. : 10/711,081  
Applicant : PRINCE, Dennis Scott  
Filing Date : August 20, 2004.  
Title : INNOVATIVE GAS MONITORING WITH SPACIAL AND  
TEMPORAL ANALYSIS  
Art Unit : 2856  
Examiner : Tamiko D. Bellamy

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Commissioner for Patents  
Post Office Box 1450  
Washington, D.C. 22313-1450

Dear Sir:

This is in reply to the Supplemental Notice of Allowability and Miscellaneous Communication dated August 5, 2008.

The application has been amended to provide a Brief Description of the Drawings. In addition, paragraph [0001] has been amended to improve its readability and the heading "Field of Invention" has been inserted on the first page. Marked up sheets for the first and second pages of the specification are attached. In view of these amendments, the paragraph numbering has been changed, and substitute specification with the proper paragraph numbering is attached.

It is submitted that no new matter has been added and support for the changes can be found throughout the Specification.

If anything further is required, the Examiner is invited to telephone, collect if necessary, the Applicant's representative Bill Vass at (416) 777-7490.

Respectfully submitted,  
**PRINCE, Dennis Scott**

A handwritten signature in black ink, appearing to read "Bill V", is positioned above a horizontal line.

William B. Vass  
Registration No. 36,416

November 17, 2008  
Toronto, Ontario  
CANADA  
WBV/cl  
WSLegal\056646\00001\4978876v1

## **Description**

**TITLE:**      **INNOVATIVE GAS MONITORING WITH SPACIAL AND TEMPORAL ANALYSIS**

### **CROSS REFERENCE TO RELATED APPLICATIONS**

[0001]    ~~I am filing a non-provisional~~ This application claims ~~claiming~~ the benefit of the provisional application ~~that is~~ number 60/481,266 ~~and was~~ filed August 20, 2003.

### **FIELD OF THE INVENTION**

[0002]    The present invention relates to gas monitoring, and more particularly to methods for determining sources of emissions.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0003]    Reference will now be made to the accompanying drawings which show, by way of example, embodiments according to the present invention and in which:

[0004]    Fig. 1 shows in graphical form exemplary data collected over a three day period;

[0005]    Fig. 2 shows in graphical form data corrected for sensor baseline response and overlaid on the data of Fig. 1;

[0006]    Fig. 3 shows in graphical form data corrected for changing sensor sensitivity over time;

[0007]    Fig. 4 shows in graphical form monitor predictions when multiple sensors are averaged;

[0008]    Fig. 5 shows a plot of percent relative standard deviation versus H<sub>2</sub>S concentration;

[0009]    Fig. 6 shows a plot of the output of five sensors working in a synchronized mode of operation;

- [00010] Fig. 7 shows a plot of a sample cycle for one sensor exposed to H<sub>2</sub>S;
- [00011] Fig. 8 shows a plot of a sample cycle for a sensor exposed to another concentration of H<sub>2</sub>S;
- [00012] Fig. 9 shows a plot of the comparison between the H<sub>2</sub>S filter mode and the baseline calibration;
- [00013] Fig. 10 shows a plot of logarithmic fitted curves for sensor outputs;
- [00014] Fig. 11 shows in schematic form a monitor according to an embodiment;
- [00015] Fig. 12 shows a plot of an exemplary measurement cycle;
- [00016] Fig. 13 shows a plot of another exemplary measurement cycle;
- [00017] Fig. 14 shows in graphical form an exemplary three dimensional plot for measurements;
- [00018] Fig. 15 shows in graphical form another exemplary three dimensional plot;
- [00019] Fig. 16 shows in graphical form another exemplary three dimensional plot; and
- [00020] Fig. 17 shows an exemplary arrangement for a sensor array and source location method according to an embodiment.



**TITLE: INNOVATIVE GAS MONITORING WITH SPACIAL AND TEMPORAL ANALYSIS**

**CROSS REFERENCE TO RELATED APPLICATIONS**

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- [00011] Fig. 8 shows a plot of a sample cycle for a sensor exposed to another concentration of H<sub>2</sub>S;
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- [00013] Fig. 10 shows a plot of logarithmic fitted curves for sensor outputs;
- [00014] Fig. 11 shows in schematic form a monitor according to an embodiment;
- [00015] Fig. 12 shows a plot of an exemplary measurement cycle;
- [00016] Fig. 13 shows a plot of another exemplary measurement cycle;
- [00017] Fig. 14 shows in graphical form an exemplary three dimensional plot for measurements;
- [00018] Fig. 15 shows in graphical form another exemplary three dimensional plot;
- [00019] Fig. 16 shows in graphical form another exemplary three dimensional plot; and
- [00020] Fig. 17 shows an exemplary arrangement for a sensor array and source location method according to an embodiment.

## **DETAILED DESCRIPTION**

[00021] The present invention relates to the monitoring of gas concentrations possible in very low ranges (i.e. low ppb and even ppt ranges) and especially use thereof in environmental monitoring, exposure assessment, bomb detection, and health studies. The invention can use a spacial and temporal assessment of gas concentrations that enables the sources of the gas in question to be located and identified which is useful in environmental and health field but can also be applied to other fields an example of which is detecting and locating explosives. This technology uses small, light weight, and low power components that allow for the monitor to be portable and even worn on a person as a personal monitor. This technology can be used in stationary monitors as well.